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# ANNUAL REPORT

OF THE DIRECTORS OF

**AMERICAN TELEPHONE AND TELEGRAPH COMPANY**

TO THE STOCKHOLDERS

FOR THE YEAR ENDING

DECEMBER 31, 1914



WITH A LETTER FROM THEODORE N. VAIL TO THE  
DIRECTORS AND SECURITY HOLDERS

NEW YORK, 1915



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# American Telephone & Telegraph Company

JANUARY 1, 1915

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## OFFICERS

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### *President*

THEODORE N. VAIL

### *Senior Vice President*

UNION N. BETHELL

### *Vice Presidents*

H. B. THAYER

N. C. KINGSBURY

B. E. SUNNY

R. W. DEVONSHIRE

### *Secretary*

ARTHUR A. MARSTERS

### *Treasurer*

GEORGE D. MILNE

### *General Counsel*

NATHANIEL T. GUERNSEY

### *Comptroller*

CHARLES G. DuBOIS

### *Consulting Counsel*

GEORGE V. LEVERETT

### *Chief Engineer*

JOHN J. CARTY

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## DIRECTORS

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CHARLES FRANCIS ADAMS, 2D  
THOMAS B. BAILEY  
GEORGE F. BAKER  
CHARLES R. BANGS  
UNION N. BETHELL  
HARRY H. BRIGHAM  
ALEXANDER COCHRANE  
W. MURRAY CRANE  
RUDOLPH ELLIS  
GEORGE P. GARDNER  
HENRY L. HIGGINSON  
ALFRED E. HOLCOMB  
HENRY S. HOWE

CHARLES EUSTIS HUBBARD  
LEWIS CASS LEDYARD  
JOHN J. MITCHELL  
RICHARD OLNEY  
WILLIAM LOWELL PUTNAM  
PHILIP STOCKTON  
EUGENE V. R. THAYER  
HARRY B. THAYER  
THEODORE N. VAIL  
JOHN I. WATERBURY  
MOSES WILLIAMS  
ROBERT WINSOR

REPORT OF THE DIRECTORS  
OF  
AMERICAN TELEPHONE AND TELEGRAPH  
COMPANY

NEW YORK, March 15, 1915.

TO THE STOCKHOLDERS:

Herewith is respectfully submitted a general statement covering the business of the Bell System as a whole, followed by the report of the American Telephone and Telegraph Company, for the year 1914.

BELL TELEPHONE SYSTEM IN  
UNITED STATES.

SUBSCRIBER STATIONS.

At the end of the year the number of stations which constituted our system in the United States was 8,648,993, an increase of 515,976, including 168,177 connecting stations. 2,885,985 of these were operated by local, co-operative and rural independent companies or associations having sub-license or connection contracts, so-called connecting companies.

PLACES REACHED BY TOLL LINES.

The Bell telephone toll lines of the United States now reach 70,000 places, from substantially all of which messages can be telephoned to the nearest telegraph office. The extent of the system is best realized by comparison with less than 60,000 post offices, 60,000 railroad stations and regular telegraph offices at about 25,000 places.

## WIRE MILEAGE.

The total mileage of wire in use for exchange and toll service was 17,475,594 miles, of which 1,364,583 were added during the year. Of the total mileage over 15,000,000 miles were exchange wires, and over 2,400,000 toll wires. These figures do not include the mileage of wire operated by connecting companies. Of this total wire mileage 92.6 per cent. is copper wire. 9,760,165 miles are underground, including 601,817 miles of toll wires in underground cables. The underground conduits represent a cost of \$90,000,000 and the cables in the conduits \$104,200,000—a total in underground plant of \$194,200,000.

## TRAFFIC.

Including the traffic over the long-distance lines, but not including connecting companies, the daily average of toll connections was about 799,000, and of exchange connections about 27,049,000, as against corresponding figures in 1913 of 806,000 and 26,431,000; the total daily average for 1914 reaching 27,848,000, or at the rate of about 8,967,000,000 per year.

## PLANT ADDITIONS.

The amount added to plant and real estate by all the companies, excluding connecting companies, constituting our system in the United States during the year 1914 was \$50,045,316, distributed as follows:—

Real Estate.....	\$ 5,001,542
Equipment.....	17,175,279
Exchange Lines.....	19,608,173
Toll Lines.....	5,851,848
Construction Work in Progress, etc.....	2,408,474
	<hr/>
	\$50,045,316

## PLANT ADDITIONS OF PREVIOUS YEARS.

The net amounts added in fifteen years have been as follows:—

1900.....	\$31,619,100	1908.....	\$26,637,200
1901.....	31,005,400	1909.....	28,700,100
1902.....	37,336,500	1910.....	53,582,800
1903.....	35,368,700	1911.....	55,660,700
1904.....	33,436,700	1912.....	75,626,900
1905.....	50,780,900	1913.....	54,871,900
1906.....	79,366,900	1914.....	50,045,300
1907.....	52,921,400		

making a total for the fifteen years of \$696,960,500.

## MAINTENANCE AND RECONSTRUCTION.

During the year \$73,091,000 was applied out of revenue to maintenance and reconstruction purposes.

The total provision for maintenance and reconstruction charged against revenue for the last ten years was over \$504,000,000.

## DEPRECIATION.

The policy of the Bell System with respect to depreciation and depreciation reserve has continued on lines that are recognized as sound and reasonable both by investors and by the telephone-using public.

That policy, briefly stated, is this:

Each Bell Company makes charges to its operating expenses for the purpose of creating and maintaining proper and adequate depreciation reserves, and these reserves are used to meet the expense of depreciation.

The Interstate Commerce Commission defines expense of depreciation as follows:

“(a) The losses suffered through the current lessening in value of tangible property from wear and tear (not covered by current repairs).

“(b) Obsolescence or inadequacy resulting from age, physical change, or supersession by reason of new inventions and discoveries, changes in popular demand, or public requirements, and



“(c) Losses suffered through destruction of property by extraordinary casualties.”

The amount charged by the Bell Companies for depreciation in 1914 was over \$41,000,000, of which the amount unused during the year was about \$15,000,000. While this \$15,000,000 will some day be required for replacement of plant, it does not remain idle in the meantime, but is invested in productive plant, and is thus temporarily employed as additional capital on which no dividends or interest charges have to be paid.

#### RETARDATION OF GROWTH.

The effects of the disturbed business conditions generally prevailing in this country during the past year have not been so serious for the Bell Telephone System as for most industries. Chiefly they were felt in a retardation of the usual growth. Thus the increase in number of subscriber stations was only about 76 per cent. of the number added in 1913, and was less than in any one of the four years previous thereto. This smaller net growth was not so much due to the falling off in new subscribers as to the unusual number of disconnections. Usually for about three new stations added there is a net gain of one station. In 1914 the proportion was nearly four new stations for a net gain of one. In traffic the number of all messages shows the small gain of slightly over 2 per cent.

Most of this retardation in growth occurred in the latter half of the year and steps were at once taken to reduce the expenditures for new construction by postponing such extensions as were not immediately necessary, with the result that the additions to plant, which at the beginning of the year were estimated to aggregate \$56,000,000, were as shown on a previous page only \$50,000,000.



For the year 1915 it is estimated that the current additions to plant will aggregate about \$35,000,000, and construction work is now proceeding on that basis.

The general business conditions, particularly as they affect the demands for telephone service, are being carefully studied and watched, and should they improve as is hoped the construction program can be promptly increased to whatever extent seems justified.

#### OPERATING RESULTS FOR THE YEAR.

The following tables show the business for the year of the Bell Telephone System including the American Telephone and Telegraph Company and its associated holding and operating companies in the United States, but not including connecting independent or sub-licensee companies nor the Western Electric Company except as investments in and dividends from those companies are included respectively in assets and revenue. All inter-company duplications are eliminated in making up these tables so that the figures represent the business of the system as a whole in its relations to the public.

The gross revenue in 1914 of the Bell System—not including the connected independent companies—was \$226,000,000; an increase of over \$10,000,000 over last year. Of this, operation consumed \$81,400,000; taxes, \$12,200,000 or 1.54 per cent. on the outstanding capital obligations; current maintenance, \$31,600,000; and provision for depreciation, \$41,500,000.

The surplus available for charges, etc., was \$59,300,000, of which over \$18,900,000 was paid in interest and \$30,300,000 was paid in dividends.

The total capitalization, including inter-company items and duplications but excluding reacquired securities of the companies of the Bell System, is

\$1,419,039,668. Of this, \$624,324,761 is owned and in the treasury of the companies of the Bell System.

The capital stock, bonds and notes payable *outstanding in the hands of the public at the close of the year* were \$794,714,907.

If to this be added the current accounts payable, \$26,214,274, the total outstanding obligations of every kind were \$820,929,181, as against which there were liquid assets, cash and current accounts receivable, of \$87,066,862, leaving \$733,862,319 *as the net permanent capital obligations* of the whole system outstanding in the hands of the public.

As stated in previous reports, we believe from appraisals made by our engineers that the cost of reproduction of the physical plants of the Bell System would exceed their book cost by some \$61,000,000, aside from all intangible values.

These telephone plants stand on the books of the companies at \$847,204,803 as of December 31, 1914, an increase during the year of \$50,045,316. Stocks and bonds owned decreased \$20,722,796, chiefly by reason of the sale early in the year of the stock holdings of this Company in The Western Union Telegraph Company as explained in the last report. Supplies, tools and receivables decreased \$7,454,953, and cash balances were increased \$17,902,418. This makes a total increase in assets of \$39,769,985, which is represented by \$24,342,116 increase in outstanding obligations of the whole system and an increase in surplus and reserves of \$15,427,869.

In accordance with our previous practice in making up the combined figures for the Bell System, all inter-company items have been eliminated, and all intangible assets have been excluded, so that the combined surplus and reserves as shown on the opposite page are considerably less than the sum of surplus and reserves shown on the books of the separate companies.

# BELL TELEPHONE SYSTEM IN UNITED STATES.

COMPARISON OF REVENUE AND EXPENSES, 1913 AND 1914.  
(ALL DUPLICATIONS, INCLUDING INTEREST, DIVIDENDS  
AND OTHER PAYMENTS TO AMERICAN TELEPHONE AND  
TELEGRAPH COMPANY BY ASSOCIATED HOLDING  
AND OPERATING COMPANIES, EXCLUDED.)

	1913.	1914.	Increase.
Gross Revenue . . . . .	\$215,572,822	\$225,952,123	\$10,379,301
Expenses—Operation . . . .	\$ 75,404,092	\$ 81,396,219	\$ 5,992,127
Current Maintenance . .	32,442,979	31,595,388	847,591*
Depreciation . . . . .	37,739,991	41,496,240	3,756,249
Taxes . . . . .	11,296,237	12,216,997	920,760
Total Expenses . . . . .	\$156,883,299	\$166,704,844	\$ 9,821,545
Net Revenue . . . . .	\$ 58,689,523	\$ 59,247,279	\$ 557,756
Deduct Interest . . . . .	16,652,624	18,940,641	2,288,017
Balance Net Income . . . .	\$ 42,036,899	\$ 40,306,638	\$ 1,730,261*
Deduct Dividends Paid . .	30,301,705	30,304,186	2,481
Balance for Surplus . . . .	\$ 11,735,194	\$ 10,002,452	\$ 1,732,742*

## COMBINED BALANCE SHEETS, 1913 AND 1914. (DUPLICATIONS EXCLUDED.)

ASSETS:	Dec. 31, 1913.	Dec. 31, 1914.	Increase.
Telephone Plant . . . . .	\$797,159,487	\$ 847,204,803	\$50,045,316
Supplies, Tools, etc. . . .	20,083,113	15,701,601	4,381,512*
Receivables . . . . .	40,349,027	37,275,586	3,073,441*
Cash . . . . .	31,888,858	49,791,276	17,902,418
Stocks and Bonds . . . .	90,523,610	69,800,814	20,722,796*
Total . . . . .	\$980,004,095	\$1,019,774,080	\$39,769,985
LIABILITIES:			
Capital Stock . . . . .	\$395,224,531	\$ 393,731,750	\$ 1,492,781*
Funded Debts . . . . .	341,147,485	385,352,367	44,204,882
Bills Payable . . . . .	33,743,368	15,630,790	18,112,578*
Accounts Payable . . . .	26,471,681	26,214,274	257,407*
Total Outstanding Obligations . . . . .	\$796,587,065	\$ 820,929,181	\$24,342,116
Employees' Benefit Fund	8,919,335	8,889,750	29,585*
Surplus and Reserves . .	174,497,695	189,955,149	15,457,454
Total . . . . .	\$980,004,095	\$1,019,774,080	\$39,769,985

\* Decrease.

All of the present surplus and reserves, aggregating \$190,000,000, is invested in tangible and productive property the revenue from which enables the companies to maintain their efficiency without paying capital charges on this amount.

Your attention is called to a comparative statement of the Bell System for the years 1907 and 1914. During that period the gross earnings have increased \$97,400,000, of which \$79,300,000 has been absorbed by increase in expenses, leaving an increase of \$18,100,000 in net earnings. The increase in interest was \$8,400,000 and in dividends \$12,200,000. The surplus for 1914 was over \$10,000,000.

During this seven-year period the assets of the companies have increased nearly \$407,000,000, while the capital obligations and payables outstanding have increased \$269,000,000. The surplus and reserves have increased from \$61,300,000 to \$190,000,000, nearly \$129,000,000 after setting aside \$8,889,750 for the Employees' Benefit Fund.

#### AVERAGE OPERATING UNITS OF ASSOCIATED OPERATING COMPANIES.

(See table on page 13.)

The table on page 13 shows average operating revenue and expenses per station, operating ratios, unit plant cost, etc., of the associated operating companies (not including the American Telephone and Telegraph Company's long-distance lines), for the years 1895, 1900, 1910, 1913 and 1914.

Although there are objections to the use of the subscriber's station as a unit or standard, especially in comparisons of one part of the country with another, yet it is the best unit available and for general comparisons of the whole system from one year to another it gives some idea of the trend of the business.



## BELL TELEPHONE SYSTEM IN UNITED STATES.

COMPARISON OF REVENUE AND EXPENSES, 1907 AND 1914.  
 (ALL DUPLICATIONS, INCLUDING INTEREST, DIVIDENDS  
 AND OTHER PAYMENTS TO AMERICAN TELEPHONE AND  
 TELEGRAPH COMPANY BY ASSOCIATED HOLDING  
 AND OPERATING COMPANIES, EXCLUDED.)

	1907.	1914.	Increase.
Gross Revenue .....	\$128,579,800	\$225,952,123	\$97,372,323
Expenses:			
Operation .....	45,894,900	81,396,219	35,501,319
Current Maintenance ..	36,626,700	{ 31,595,388 }	36,464,928
Depreciation .....		{ 41,496,240 }	
Taxes .....	4,873,400	12,216,997	7,343,597
Total Expenses ...	\$ 87,395,000	\$166,704,844	\$79,309,844
Net Revenue .....	\$ 41,184,800	\$ 59,247,279	\$ 18,062,479
Deduct Interest .....	10,508,500	18,940,641	8,432,141
Balance Net Income .....	\$ 30,676,300	\$ 40,306,638	\$ 9,630,338
Deduct Dividends Paid ..	18,151,700	30,304,186	12,152,486
Balance for Surplus .....	\$ 12,524,600	\$ 10,002,452	\$ 2,522,148*

## COMBINED BALANCE SHEETS, 1907 AND 1914.

## (DUPLICATIONS EXCLUDED.)

ASSETS:	Dec. 31, 1907.	Dec. 31, 1914.	Increase.
Contracts and Licenses..	\$ 9,078,000	.....	\$ 9,078,000*
Telephone Plant .....	502,987,900	\$ 847,204,803	344,216,903
Supplies, Tools, etc. ....	17,165,200	15,701,601	1,463,599*
Receivables .....	29,584,500	37,275,586	7,691,086
Cash .....	24,869,600	49,791,276	24,921,676
Stocks and Bonds .....	29,448,300	69,800,814	40,352,514
Total .....	\$613,133,500	\$1,019,774,080	\$406,640,580
LIABILITIES:			
Capital Stock .....	\$291,095,400	\$ 393,731,750	\$102,636,350
Funded Debts .....	196,113,700	385,352,367	189,238,667
Bills Payable .....	45,175,700	15,630,790	29,544,910*
Accounts Payable .....	19,436,600	26,214,274	6,777,674
Total Outstanding Obligations .....	\$551,821,400	\$ 820,929,181	\$269,107,781
Employees' Benefit Fund .....	.....	8,889,750	8,889,750
Surplus and Reserves ...	61,312,100	189,955,149	128,643,049
Total .....	\$613,133,500	\$1,019,774,080	\$406,640,580

\* Decrease.

It will be observed that both earnings and expenses per station are now slightly less from year to year and are very much less than in earlier years. The average earnings per station have naturally decreased as the telephone service has been extended to smaller communities and to smaller users in the cities. A very large majority of the subscribers pay an annual rate much less than the average. The expenses per station have in spite of increased wages and taxes been kept down by improved methods and greater efficiency all along the line.

Particular attention is called to the per cent. of net earnings and of dividend and interest disbursements to total plant and other assets:

Net earnings to plant and other assets . . . . . 5.51%

Dividends and interest to plant and other assets . 4.87%

In other words, the property employed earned less than 6 per cent. per annum, and the dividends and interest paid were less than 5 per cent. upon the value of the property, which could not be considered unreasonable.

#### WESTERN ELECTRIC COMPANY.

As early as 1880 it was recognized as important that an ample source of supply of approved apparatus should be provided for the operating companies, and a contract was made with the Western Electric Company by virtue of which operating experience and manufacturing experience were brought into co-operation, under the supervision of our engineering forces to provide standard apparatus. The apparatus was largely covered by patents and its sale was limited to the Bell Telephone System. The operating companies were, and remained, free to buy of the Western Electric Company or elsewhere as seemed to them most desirable.

# AVERAGE OPERATING UNITS OF ASSOCIATED OPERATING COMPANIES, 1895 to 1914.

(THIS TABLE COVERS THE COMPANIES OWNING ALL THE EXCHANGES AND TOLL LINES OF THE BELL TELEPHONE SYSTEM EXCEPT THE LONG-DISTANCE LINES OF AMERICAN TELEPHONE AND TELEGRAPH CO.)

Average per Exchange Station.

EARNINGS:	1895.	1900.	1910.	1913.	1914.
Exchange Service.....	\$ 69.75	\$ 44.68	\$ 31.28	\$ 30.45	\$ 29.81
Toll Service.....	11.35	12.60	9.47	9.03	8.60
Total.....	\$ 81.10	\$ 57.28	\$ 40.75	\$ 39.48	\$ 38.41
EXPENSES:					
Operation.....	\$ 29.15	\$ 21.63	\$ 15.14	\$ 15.92	\$ 15.88
Taxes.....	2.23	2.37	2.00	2.03	2.00
Total.....	\$ 31.38	\$ 24.00	\$ 17.14	\$ 17.95	\$ 17.88
Balance.....	\$ 49.72	\$ 33.28	\$ 23.61	\$ 21.53	\$ 20.53
Maintenance and Depreciation.....	\$ 26.20	\$ 17.68	\$ 13.46	\$ 13.06	\$ 12.62
Net Earnings.....	\$ 23.52	\$ 15.60	\$ 10.15	\$ 8.47	\$ 7.91
Per Cent. Operation Expense to Telephone Earnings.....	35.9	37.8	37.2	40.3	41.4
Per Cent. Telephone Expense to Telephone Earnings.....	71.0	72.8	75.1	78.6	79.4
Per Cent. Maintenance and Depreciation to Average Plant, Supplies, etc.....	9.1	8.4	9.5	9.1	8.9
Per Cent. Increase Exchange Stations*.....	15.7	26.5	11.8	9.5	6.4
Per Cent. Increase Miles Exchange Wire*.....	15.9	33.2	12.0	10.9	9.2
Per Cent. Increase Miles Toll Wire* (excluding Long-Distance Lines).....	21.3	25.2	11.5	6.6	5.5
Average Plant Cost Per Exchange Station (Exchange and Toll Construction, excluding Long-Distance Lines).....	\$260	\$199	\$142	\$141	\$141
Average Cost Per Mile of Toll Wire (including Poles and Conduits, excluding Long-Distance Lines).....	\$ 81	\$ 71	\$ 66	\$ 70	\$ 69
Per Cent. Gross Telephone Earnings to Average Plant...	29.7	28.4	28.8	28.2	27.6
Per Cent. Total Net Earnings to Average Capital Obligations..	9.76	8.85	7.52	6.76	6.66
Per Cent. Total Net Earnings to Plant and Other Assets.....	9.36	7.96	6.65	5.69	5.51
Per Cent. Paid Out on Average Capital Obligations.....	5.13	6.10	6.01	5.85	5.88
Per Cent. Paid Out on Plant and Other Assets.....	5.09	5.57	5.31	4.92	4.87

\* Increase during year shown, over previous year.



When at a later period our plans involved connecting with rural companies, it became advisable that they also should have standard apparatus, and all restrictions as to sales by the Western Electric Company were removed.

In the evolution of the business the Western Electric Company became also a source of supply of other materials not manufactured by it, and about fifteen years ago at the suggestion of one of the operating companies an arrangement was worked out by the Western Electric Company under which it assumed the relation of purchasing agent and storekeeper. This arrangement was adopted one by one by the other associated companies and by this Company for its Long Distance Lines Department; and at the present time as a result, the Western Electric Company is the purchasing agent and storekeeper of the entire Bell System.

The contract defining this relation has been investigated by public commissions, and not one has found it other than a desirable arrangement.

This contract as drawn is so liberal as to the power to make exceptions and to cancel that in effect it is hardly more than a codified routine.

Thus as a natural evolution and because the relation is advantageous to all the parties, the Western Electric Company has become the manufacturing, purchasing and supply department of the Bell System. In both efficiency and economy the value of the relation to the system is enormous.

Sales of the Western Electric Company for 1914 amounted to \$66,400,000, of which \$43,900,000 represents sales to the companies of the Bell Telephone System, and \$22,500,000 represents sales to other customers.

The orders on hand January 1, 1915, were \$4,309,000 less than on January 1, 1914.

The effect of the European war upon the company's foreign investments is, of course, very serious, but cannot be measured with any degree of certainty at this date.

PLAN FOR EMPLOYEES' PENSIONS, DISABILITY BENEFITS  
AND DEATH BENEFITS.

As a result of the first year's experience under the Benefit Plan, revised regulations for the administration of the Employees' Benefit Fund, extending the benefits in some minor respects, were adopted and took effect on May 1, 1914. During the year benefits were paid in 20,915 cases of disability or death among the employees of this Company and of the associated operating companies, and at the end of the year 211 former employees were carried on the pension rolls. The total amount expended for all classes of benefits was \$1,338,261. As was true during the first year's operation of the Plan, a very large percentage of the cases consisted of minor disabilities among the lower salaried employees, to whom a loss of wages for even a short period would have been a hardship. The work of studying the information secured in connection with the operation of the Plan is being continued with a view to the extension of measures for the prevention of sickness and accident.

## REPORT OF THE AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

### EARNINGS.

The net earnings of the American Telephone and Telegraph Company for the year were \$40,557,977.29, approximately the same as in the previous year. The interest charges were \$8,223,163.23 and the dividends at the regular rate of 8 per cent. per annum were \$27,572,674.72. Of the resulting balance there was carried to Reserves \$2,500,000 and to Surplus \$2,262,139.34.

### ISSUES OF CAPITAL STOCK AND BONDS.

The only change in the outstanding capital stock and bonds of this Company during 1914 was the issue of \$65,600 par value of stock through the conversion of \$86,000 of the 4% convertible bonds of 1906.

The total outstanding capital stock and bonds of the American Telephone and Telegraph Company at December 31, 1914, were as follows:

Capital Stock.....	\$344,681,900
4 Per Cent. Collateral Trust Bonds	78,000,000
4 Per Cent. Convertible Bonds..	4,505,000
5 Per Cent. Western Tel. and Tel. Co. Bonds.....	10,000,000
4½ Per Cent. Convertible Bonds 1933.....	67,000,000
Total.....	<hr/> \$504,186,900

For the \$344,681,900 capital stock, \$369,219,358 has been paid into the treasury of the Company; the \$24,-

537,458 in excess of par value represents premiums. All discounts on the bond issues have been charged off.

The number of shareholders, 59,415, on December 31, 1914, shows an increase of 3,432 during the year. That the distribution is general appears from the following:

52,338 held less than 100 shares each;

6,717 held from 100 to 1,000 shares each;

335 held from 1,000 to 5,000 shares each;

15 held 5,000 shares or more each (omitting brokers and holders in investment trusts, etc.).

Of the holders of less than 100 shares each,

12,568 held 5 shares or less each;

39,330 held 25 shares or less each.

The average number of shares held was 56. A majority of the Company's shareholders are women. Only 5 per cent. of the stock was at December 31st in the names of brokers. Less than 4 per cent. of the stock is held in Europe.

Although not effective until 1915, mention may be made here of the plan recently announced, by which employees of two years' service or more in the Bell System are aided to become stockholders of this Company to the extent of a limited number of shares each, which they are to pay for out of their wages at the rate of \$2.00 per share per month. Over 30,000 employees in all parts of the country have applied for shares under this plan.

Counting these 30,000 employees and also those persons whose stock is held for them in investment trusts and the like, there are undoubtedly more than 100,000 actual owners of stock in this Company.

#### FOUR AND ONE HALF PER CENT. CONVERTIBLE BONDS.

The 4½ per cent. Convertible Bonds issued March 1, 1913, are convertible at the option of the holder into capital stock beginning March 2, 1915.

The terms of such conversion are set forth in a circular letter of February 10, 1915, which has been issued and which will be mailed to any applicant.

REPORT OF THE ENGINEERING DEPARTMENT.

In the Bell System standardization does not represent a standing still but means unceasing effort, continually improving and upbuilding. Standard specifications covering improvements in all of the thousands of pieces of apparatus and methods employed in the plant and traffic of the Bell System follow each other with astonishing rapidity.

The plant of the Bell System must not be regarded merely as a completed machine which becomes worn out, and then, after a time, is thrown away and replaced by a new one. It is like an ever-living organism, always growing in size and usefulness, incorporating into its structure what is new and improved, and eliminating the obsolete, the worn out and the used up. Thus it is kept permanently in a condition of full vigor and at the point of highest attainable efficiency, anticipating the ever-growing needs of the service and responding successfully to the always-increasing requirements of the public.

The amount of this development and the rapidity with which new improvements are incorporated into the Bell System, and the speed with which the worn out parts are eliminated, are exemplified by the fact that during the past five years, under the standard specifications of our General Engineering Staff, new plant of all kinds costing more than \$425,000,000 was added to the Bell System and plant to the value of more than \$175,000,000 was taken out and removed from service.

How promptly the Bell System has responded to the increased demands made upon it by the public



may be understood from the fact that from 1906 to 1914 new construction work in the Bell plant was done under our engineering specifications to an amount more than \$700,000,000.

Each year we expend large sums in the scientific, engineering, experimentation and development work which constitutes the process of standardization. As a result of such work, and pursuant to our policy of always providing for the associated companies the best obtainable, we have introduced into our switchboards improvements, in large matters and small, literally by the tens of thousands. In doing these things we have expended on the development of this part of the art alone during the past five years many millions of dollars, and because we have done this we have saved for the public and the associated companies many more millions.

While the improvements which have already accrued in the service rendered to the public by the associated companies have amply justified the expenditure of this money, it is in preparing the way for the orderly future development of the switchboard system along rational and effective lines that this expenditure will bear its greatest fruit. It will enable our companies to avoid the enormous reconstruction costs which would result from even one false step in a matter so complex as this. It keeps out of the switchboard art all that is merely speculative or notional. It settles disputed questions by practical demonstrations conducted so carefully as to produce not the slightest disturbance in the telephone service rendered the public anywhere, and performs the great service of putting the new ideas into effect so that they will fit into the existing plant most effectively and most economically. It thus avoids the immense multiplication of expense and the widespread annoyance to telephone users

everywhere which would result if each of the associated companies, acting for itself and at its own expense, were to conduct these developments in connection with its own plant.

It would be inefficient and extravagant to treat the switchboards and instruments and wire plant of the associated companies as isolated units each to be developed regardless of the others. The plant and methods of each company must be co-ordinated with those of all of the other companies, because each is but a part of the unified structure constituting the Bell System, each part of which must be planned so as to fit into the other parts wherever they may be located throughout the United States.

Large and well equipped as our own development staff is, we are constantly on the lookout for new ideas wherever they may arise. A good idea may spring up in the mind of man anywhere, but as applied to such a complex entity as the Bell System, the countless parts of which cover the whole United States, no individual unaided can bring the idea to a successful outcome. A comprehensive and effective engineering, scientific, development and manufacturing organization such as is provided by the Bell System is necessary, and years of expensive work are required before the idea can be rendered useful to the public.

The latest product of this unceasing organized effort of the Bell System is the transcontinental telephone line, 3,600 miles long, bringing San Francisco within commercial talking distance of the principal cities on the Atlantic seaboard. Few can appreciate the years of indefatigable labor on the part of our entire staff, and the immense sums of money which this achievement has cost, and fewer still can foresee the countless ways in which it will, from now on, make for the benefit of all the service rendered to the public everywhere.



For it should be understood that transcontinental telephony is not the result merely of one concrete idea or device. It is a problem which was solved by the cumulative effect of improvements, great and small, in telephone, transmitter, line, cable, switchboard and every other piece of apparatus and plant required for the transmission of speech.

The first telephone line was a copy of the best telegraph line of the day. It was an iron wire strung on poles and house-tops, using the ground for the return circuit. Electrical disturbances coming from no one knows where were picked up by this line. These disturbances were frequently so loud in the telephone as to destroy conversation. When the second telephone wire was strung alongside of the first even though perfectly insulated from it, another surprise awaited the telephone man. Conversation carried on over one of these wires could plainly be heard on the other. Another strange thing was discovered—iron wire was not as good a conductor for the telephone current as it was for the telegraph current. The talking distance, therefore, was limited by the imperfect carrying power of the conductor and by the confusing effect of all sorts of disturbing currents from the atmosphere and from the neighboring telephone and telegraph wires. The hard drawn copper circuit greatly extended the range of transmission, and the metallic circuit, transposed according to the methods devised by the Bell engineers, eliminated the outside disturbances. But this was not to be the state of affairs for long. Powerful electric light and power circuits began to spring up and methods which had formerly been successful in protecting the telephone from disturbing currents were not effective against these new high powers.

Years and years of work have been devoted to safeguarding the telephone circuit from these disturb-

ances, and each new success which the telephonist has accomplished in this direction has been met by a further advance in high potential and high current on the part of the power circuits. And thus a section of the General Staff is constantly employed in studying electric railway, electric power and electric light circuits and systems, and in co-operating with the electric light and power engineers so as to maintain harmonious relations between the two classes of circuits.

It has been said with truth that if these high power circuits had been discovered and in use before the telephone was invented, the results obtained from the first telephone lines would have been so utterly impracticable that it is hard to think of anyone being foolish enough to regard the telephone as having any commercial value.

The metallic circuit and hard drawn copper wire so greatly improved and extended the telephone service that wires began to increase in such numbers that the use of cables was imperative. A new series of difficulties then arose, one mile of underground cable cutting down the transmission sometimes as much as one hundred miles of overhead wire. How successful has been the attack upon the underground wire problem is best shown by the figure of over 9,000,000 miles of wire in underground cable in 1914 as against only a few hundred miles in 1884.

In extending the range of talking through underground cables and through overhead wires, thousands of inventions and engineering improvements have been utilized, including the loading coil of Dr. Pupin and others of very great importance.

How great is the sum total of these improvements was demonstrated when Dr. Alexander Graham Bell, using a reproduction of the first telephone ever made, talked successfully from New York to San Francisco

where he was heard by Mr. Watson more clearly and more distinctly than he was when the same two men held the first of telephone conversations using this same type of instrument over a wire extending only from one room to another in the same building.

Deduct from the telephone art the grand total of improvements which the Bell Company has introduced into its system since the day of the first telephone conversation, and this faint-speaking, crude wooden first telephone is all that is left.

Greater than the benefits directly accruing from the use of the transcontinental service, will be the advances which, in numberless ways as time goes on, will result from this achievement to the telephone-using public everywhere. At the present time, telephonic communication is provided between California and the principal cities on the Atlantic coast. Engineering studies have already been begun for the extension of this service to include the principal cities of the United States so that direct telephonic intercommunication between them all will become general.

The line from New York to San Francisco is overhead throughout its entire extent except for a few short stretches of cable in cities and under rivers. Notwithstanding the improvements which we have made in underground cables, it is still necessary in such long lines as this, to exclude as far as practicable all lengths of cable however short. For reasons which need not be detailed here, even with the very best cable and apparatus known to the art, the distance through which speech may be clearly and distinctly transmitted is greatly restricted when the wires are placed underground.

To extend the distance, therefore, through which speech may be transmitted in underground cables, has been the subject of constant experimentation and

development by our engineers since the foundation of the Company, and the successful working of the underground cable from Boston to Washington, commented on in the report of last year, marked an advance as important and as far beyond anything accomplished elsewhere in the art of transmitting speech underground as is the result just obtained between New York and San Francisco in transmitting speech overhead.

Not only the inventing and improving of new types of cable for toll line service, but also the discovery and perfecting of the most efficient underground cable for use in the subscribers' lines, occupies the attention of our transmission and cable engineers.

During the past year, we have developed a type of underground cable carrying 2,400 wires in a sheath having a diameter not greater than  $2\frac{5}{8}$  inches. This cable is, of course not available in districts containing but a small number of wires, nor indeed can it yet be employed in lengths greater than a couple of miles in a given line. As the number of wires increases, more and more use will be found for it and there is reason to expect that as our engineering development progresses we shall be able to use it in increasing lengths, thus introducing a still further economy in this important department of our plant. The improvement which is represented by this cable, a section of which may be placed in the pocket, may be understood when it is known that to carry the same number of open wires on poles would require 12 huge pole lines each carrying 20 large cross arms filled with wires.

The economies accomplished by these improvements in cables are not limited to the cables themselves, but extend to the underground duct system whose capacity is multiplied enormously by the increase in the number of wires which each cable may carry.



By using these cable improvements which the central Engineering Staff has placed at their disposal, the associated companies have saved, in the construction of their cable and subway systems, a sum greater than \$60,000,000.

Notwithstanding the progress which we have made in the development of underground telephone cables, which is far beyond that of any other country, the time when the telephone wires can be placed underground universally is still a long way off.

There are outstanding technical questions presenting immense difficulties, but even if these were overcome, this placing of the wires underground is rendered impossible by prohibitive economic reasons which dominate everything. In certain large centers there are telephones and telephone connections sufficient to carry the enormous costs of the underground systems and cables where the electrical conditions permit of their use. In all other places the economic burden of the subways would be so great that it would not only put an end to the further extension of the telephone service, but it would take it away from most of those now enjoying its benefit through the use of wires overhead.

In cities, underground trolleys for electric cars, asphalt pavements and many other things of like nature, are economic possibilities, but their general extension into suburban and country districts is an economic impossibility.

To place the telephone wires of the United States underground, as has sometimes been thoughtlessly suggested, is likewise an economic impossibility. Even assuming that all of the technical difficulties had already been overcome, it would still require the expenditure of billions of dollars, creating an intolerable financial burden upon the telephone-

using public. Manifestly, like so many other developments, the extension of underground telephone wires is not to be accomplished by fiat. It must be a matter of gradual growth. The progress which we have made in the past is the best evidence that we will continue our policy of increasing the mileage of underground wires year by year as fast as the technical advances and the economic conditions of the country permit.

While the accomplishment of transcontinental telephony is the culmination of years of scientific development and experimental investigations and engineering effort, and while it marks the end of an era, it does not mark the end of our progress. It has laid the foundation for a new period of greater development and greater progress. We are confident that the work of our engineers in this new era will equal and even surpass what they have done before.

#### REPORT OF THE LEGAL DEPARTMENT.

The Legal Department has the care of such legal matters as are naturally incidental to the operation by the Company of its long-distance lines. In addition to this, and much more important than this, is the service which the Legal Department renders in connection with the work of the associated companies. It is difficult to give a satisfactory general description showing clearly the nature and extent of this general service. It is not inaccurate to say that the Legal Department acts as counsel for each of the associated companies.

In the first place, the Legal Department endeavors to keep closely in touch with all questions of a legal or quasi-legal and economic nature which involve matters that may be of interest to the system as a whole, and to render the information which it obtains available at all times to each associated company.

To disseminate such information as is of general interest, the Legal Department issues various publications, including periodical bulletins calling attention to current decisions of the courts involving questions which are of interest to the telephone industry, the publication in book form of telephone and telegraph cases decided by the commissions in this country and in Canada, and compilations of the statutory law relating to telephone and telegraph companies, as well as occasional special bulletins upon special questions of importance.

Supplementing this general service, special service is rendered to the associated companies covering substantially all classes of questions which arise throughout the system; so that the Legal Department, while leaving to the local companies the transaction of local legal affairs, in fact supervises and in a general way directs these affairs for the system, to the end that the entire experience of the system may be available for the benefit of each part of it, and that as to all questions of a general nature involving matters of policy which may affect or react upon the system as a whole, sound and consistent theories may be developed.

Many of the most important questions which arise grow out of commission regulation. General regulatory powers are vested in the Interstate Commerce Commission and in state commissions in forty states. There is also a Public Utilities Commission in the District of Columbia and some limited power is exercised by the Railroad Commissions of Kentucky and Texas. Commission regulation is in the development stage. The policy of the Company has been to co-operate with the various commissions in an effort to establish this regulation upon the sound fundamental lines which are necessary to justify it from the



standpoint either of the public or of the public utilities. To this end a large amount of important work has been done by the Legal Department in an effort, first, to clearly establish the fundamental propositions, both legal and economic, underlying proper rate regulation, and second, to bring about a capable presentation of these propositions to the various commissions interested.

The amount of pending litigation continues to be insignificant. The suit referred to in the last report which the United States instituted in Oregon, charging that certain local transactions in which The Pacific Telephone and Telegraph Company and The Mountain States Telephone and Telegraph Company were most directly concerned were in violation of the Sherman Act, has been disposed of in accordance with the terms of a decree filed March 26th, 1914, as a result of a compromise agreed upon between the United States and the defendants. The basis for an adjustment which this decree fixes is apparently working out in a manner satisfactory to both the companies involved and the public.

A suit which had been brought by the State of Mississippi against the Cumberland Telephone and Telegraph Company, this Company, the American Telephone and Telegraph Company of Mississippi, and The Western Union Telegraph Company, in which a large sum was claimed as penalties on account of alleged violations of the anti-trust laws of the State of Mississippi, has been adjusted by the payment of a comparatively nominal amount. Pursuant to this adjustment, a decree was entered with the consent of all the parties on the 28th of March, 1914, which expressly recognizes the legality of the organization of the Bell System and of the relationship between the various companies constituting the system, as well as their business and practices.

The suit referred to in the last report brought by William A. Read and Company in Chicago is still pending. A vigorous effort is being made to bring it to trial upon the merits, and it is expected that this will be done prior to the vacation of the courts in the coming summer.

There is no suit pending against this Company, or any of its associated companies, charging any violation of any state or federal anti-trust law.

The arrangement with the Attorney General of the United States, evidenced by the correspondence between him and this Company set out in the last report, has been consistently adhered to, and has resulted in an entire avoidance of misunderstandings or disagreements with the federal authorities.

### PROFIT SHARING.

Plans of assistance and encouragement to the employees have for a long time been under consideration by this Company. In fact, this Company was a pioneer in practical welfare work, particularly on those lines which bettered and improved the condition of daily employment and aided the employed through those critical periods impossible to anticipate or prevent, and against which the juniors had not been able to accumulate any provision. Welfare work, pension and sick benefit plan, have demonstrated their practical value. The recent offer of stock at a low price on instalments, of which over 30,000 employees have availed themselves, was intended particularly as an encouragement to saving. As a rule investment in the common shares of a corporation, subject as they are to market fluctuation and economic disturbance, is not the ideal "one basket" for more or less limited savings, but the dividend record and the average price and present outlook indicate a safe,

continuing margin, and in addition the dual relation furthers their interest in their work.

This has been termed by some "profit sharing." It should not be. It is investment, by which the employee becomes also a proprietor, and he occupies the dual relation of proprietor and employee, which if it can be practically worked out to its fullest possibilities, will be ideal.

There has been much discussion over profit sharing without taking into consideration the actual factors which must govern its practical introduction. The conditions which exist in different employments, industries and enterprises are so varied, running from one extreme to another entirely opposite extreme, that nothing like generalization is possible.

On the one extreme there is occasionally an enterprise of which the promoter, through his personality, individual foresight, business acumen and ability to organize both the construction and distribution departments, is enabled to get either a permanent or temporary possession of a field and thus to create a business and produce a commodity which can be sold at a large advance on cost; is enabled to create a business where a large gross revenue can be obtained upon a small investment of capital; is enabled to create a business where profits constitute a large part of the gross revenue, and is enabled to divide or distribute profits many times the amount of the capital. No one wishes to dispute the right to these profits or lessen the credit of producing or distributing them as he wills, but it is impossible to take this as the foundation for a general profit sharing scheme.

In the middle position are the ordinary industrial or commercial enterprises, requiring large capital investment in plant and machinery and large working capital to carry the business, which present no abnor-

mal advantages except those which accrue to individual initiative and business acumen; where the gross production bears normal relation to capital employed, but where the profits, though unrestricted, are subject to fluctuations of business, are sensitive to economic disturbance and vary greatly from year to year; where efficiency of organization, individual initiative, shrewdness in anticipating market conditions or demands, conservation and utilization of waste, where invention or discovery and advance introduction of novelties, promotion of new enterprises, creation of new fields and improved methods of distribution, influence largely the profits, all of which belong indisputably to the proprietors to divide or share with employees.

On the other extreme is a public utility, where a very large capital relatively to the gross revenue is required; where the operation is controlled and regulated by public authorities; the principle of such control and regulation being fair wages, ample maintenance, proper depreciation, fair return on the actual investment, no provision against expiring franchises, all surplus either returned to the public in the reduction of rates or invested in property against obsolescence and depreciation.

In such enterprises there can be little or no "profit sharing" for either stockholders or employees.

The capital invested must be paid for, in order that new capital in sufficient amount can be obtained as it is needed. The employee, a preferred creditor, must be paid sufficient to get his best services, and his further reward is through increase in compensation, promotion and security of position for proved efficiency, and a proper consideration for his welfare.

This is the situation of the Bell System. It is to be hoped that there will be many ways of bettering the condition of the employees, by improving still further



the conditions under which they work and their position as preferred participants, by aiding and assisting them in their efforts to accumulate, and by helping them to educate themselves up to the highest ideals of life work.

Whatever possibilities the future may develop with respect to profit sharing in regulated public utilities cannot now be safely predicted, but it is clear that the efforts to improve working conditions to higher standards than those now existing even in the Bell System should come first.

### DISTRIBUTION OF REVENUE AND COST OF CAPITAL.

Some analysis of the distribution of revenue in this connection cannot fail to be interesting to the employee, the shareholder and the subscriber, each of whom has a vital interest in the revenue its distribution and the surplus.

The statistics per employee are as follows:

Average investment in plant per employee, \$5,338.

Average outstanding securities per employee, upon which charges have to be paid, representing capital invested in plant. 4,632.

Gross telephone revenue per employee. . . . 1,408.

distributed as follows:

Wages to employees . . . 46.5%,	\$656.
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Taxes . . . . . 5.5%,	79.
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Supplies and expenses 24.0%,	337.
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Net operating revenue 24.0%,	336.
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Net earnings are divided as follows:

Charges paid on capital (which is 5.1% on the capital invested in plant, or 5.9% on the outstand- ing securities) . . . . .	\$271.
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Surplus revenue . . . . .	<u>65.</u> 336.
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It takes an investment of nearly four dollars to earn one dollar gross revenue. This dollar of gross revenue is divided. Forty-six and one-half cents are paid in wages to employees, five and one-half cents go for taxes and twenty-four cents go for material and other expenses, a very considerable part of which ultimately goes for wages, leaving as net operating revenue twenty-four cents of which about twenty cents pay for the use of the four dollars of capital invested. The remaining four cents of surplus revenue are actually expended for plant additions of which about one-half is for wages.

It will also be interesting to the subscriber to learn what is done with his payment for service.

For the service of the Bell System, not including toll and long-distance service, the average revenue for exchange service per telephone station, which is the only unit, is \$29.81. This average revenue of the Bell System is less than the average revenue of any other comprehensive system in the world, and as there are some abnormally large users of the telephone service in this country, more so than in any other country, it follows that by far the greater part of the 5,800,000 Bell owned stations in the Bell System cost the patron for exchange service less than \$29.81 per year. For all telephone service, including toll and long-distance, the average revenue per station is \$40.20 per year.

The average investment in plant per station, including telephones and long-distance lines, is \$152, represented by \$132 outstanding capital liabilities, upon which charges are paid. The average gross revenue, for exchange and toll service, of \$40.20 per station, is distributed as follows:

Wages to employees.....	\$18.72, or nearly one-half;
Taxes.....	2.26;
Miscellaneous expenses, light, heat, welfare, ma- terial, etc.....	9.62.

This leaves a net operating revenue of \$9.60, of which \$7.75 is paid for capital charges, or an average of 5.1% on the plant investment, or an average of 5.9% on the outstanding securities, leaving a surplus of \$1.85.

A surplus over all expenses and charges is necessary in any enterprise to insure stability and certainty and maintain a position of permanency, particularly any enterprise which is called on to secure large amounts of new capital to provide for rapid increase in amount and extent of service. Such surplus, to insure proper financial support, must be sufficient to absorb, as it were, the sudden fluctuations of business, as no organization can closely adjust its operating expenses to such fluctuations. Changes in dividend rates lead to speculation and uncertainty, and make the marketing of securities for growth and extension difficult and expensive.

The charges necessary to command investment capital at all times are in exact relation to the confidence in the security of the investment and the certainty that the charges will be paid.

In any enterprise even of small magnitude, capital is as necessary as are employees. Without capital there can be no employment of workers. Without workers there can be no employment of capital. For enterprises requiring as large capital relatively to gross and net earnings as does the telephone service, capital cannot be provided out of revenue nor from any source other than the investor, and then only because it is attracted to the investment. This being so, the question is whether the investment per unit is too great or whether the charges paid on capital are too high. That the investment of the Bell System is actually there, has been certified to and confirmed by many examinations and investigations. That the investment per unit is reasonable is proved by the fact that it is considerably less than that of any other comprehensive system in the world.



Could the money be got for less? Taking the average of all the years, it is not probable that even if procured on government bonds or on government guarantee, it could be obtained in the enormous amount required, for much less than the utilities as a whole have to pay.

It has been suggested that the government take the property and pay for it in 3% bonds at par. This establishes nothing. If it can be taken and paid for in 3% bonds at par, it can be taken and paid for with 2% or 1% bonds at par, or even be taken for nothing.

Property can be taken only at *just compensation based on fair valuation*.

The other large items of cost are wages to employees, maintenance and depreciation and taxes. Wages must be sufficient to attract and retain the best service; the wages paid by the Bell System are maintained at that level as far as possible. Proper maintenance and depreciation are necessary, without them good service cannot be given by the best of employees.

The taxes are considerable and appreciable in amount, but the taxes, while increasing the cost of the service, indirectly relieve the public of the payment of them in some other form. The amount of taxes paid by *privately-owned* public utilities annually in the United States is over \$200,000,000. The principle involved in the payment of taxes is that they are levied on corporations and franchises and do not increase the individual tax levy. The subscribers who pay for the telephone service contribute to the taxes which otherwise would be levied on all the property of all the people. It is neither a charge in the sense of the service cost nor would the abatement of taxes be any relief to the public—it would be a relief only to the telephone users.

By whatever means the service is provided, whether by private enterprise or state operation, *it must be*

*paid for in some way. Something cannot be provided for nothing.* The Bell System and the independent telephone movement have both demonstrated that service such as will be accepted even when restricted to local use, cannot be given at less than the average prevailing cost. Sad experience either to the investor, the promoter or both, has been the consequence wherever this has been claimed or attempted. Service can be maintained at the cost of the plant for a time, but, to repeat, the inevitable experience is, something cannot be given for nothing. In all the government-operated telephones, though the average cost of plant and charges for service per station are greater than in the Bell System, there is the invariable deficit which is paid out of general revenue. No enterprise, government or private, which is obliged to show a proper balance sheet, and obliged to pay full prices for the services rendered by others, can give a service for less than cost of all kinds, and no enterprise not obliged to show a proper balance sheet can exist without being covered with barnacles. Waste and extravagance are bound to follow lack of accountability. Efficiency may be had, but never economy.

## ADMINISTRATION.

### DEVELOPMENT OF THE BELL ORGANIZATION.

In all industrial organization there are two distinct divisions of action, "Administration" and "Operation."

"Administration" is centralized, it is legislative, determinative of general subjects, supervisory and judicial, acts alike for all branches and divisions and may be located apart from the seats of action.

"Operation" is executive. It is the action, the operation supreme as to local questions but responsible to the central administration. It may be

separated into divisions or departments each having operating relations with the other but no lines of authority between them.

In the Bell System the "Administration" is in the American Telephone and Telegraph Company, the central company. The "Operation" is in the Associated Companies, each operating on defined lines in distinct territory, each in fact an operating division and no more.

This organization is the result of the original plan of development as well as a necessity for operating and legal requirements. Because of state sovereignty, any nation-wide public service corporation, performing intrastate and interstate service which requires co-ordination of effort and co-operation in operation must, for purposes of franchise and state control, be operated through subordinate or associated companies operating under the jurisdiction of each state.

When the telephone was born, electrical science was still in its laboratory swaddling clothes, industrial electricity simply a dream, the electrical engineer as now considered, non-existent. Single-line grounded circuits only were known, and were used for telephone circuits. The current used for electric telephone speaking being the most delicate of all operating currents and the telephone receiver the most delicate of all instruments, the inductive disturbance from atmospheric or artificial electrical currents so interfered with and confused the delicate telephone current that distinct speech was difficult at all times on all outside lines and often quite impossible; the difficulty increasing with distance until speech was impossible.

In the then existing practice of electrical intercommunication it was more economical to use a heavy current for operation than to construct and maintain

lines of superior construction. The telephone current, because of its high inductive quality next to impossible to insulate against, reproduced itself on all lines in close proximity and caused interference. Increased strength of the transmitter current to overcome obstructions, increased the interference and, where there was a large concentration of lines, made understandable conversation impossible. If the maximum use of the telephone was to be obtained, there must be large concentration of wires, and to make this possible it was imperative to overcome obstacles and improve the path of the current by quality and character of construction, and by neutralizing the disturbances.

The telephone instruments to be of service must be used in connection with lines equipped with auxiliary and ancillary apparatus of great variety, none of which existed at the time; it had to be originated and created.

There was nothing from which the commercial policy and operating methods could be adapted, nothing by which the usefulness or value of the telephone exchange service could be demonstrated. Its value was in the number of people that could be reached from any one station, and nothing existed by which this value could be shown. All had to be created; there was nothing in practice to guide, nothing in precedent to follow. Never did any invention of such potential importance come on such virgin fields.

The original Bell Company was not an operating company; it owned the telephone patents and leased the telephones.

The lack of confidence, the lack of any belief in the possibilities of the "Yankee toy," so-called, made it impossible to create for purposes of development any large organizations with proper financial support. The development had to be made in units of territory of limited area and distance, and by those whose



principal capital was belief, courage and persistence, with "everything to make and little to lose." The licenses for exchange service were limited in term and in area. Interconnecting the local exchanges into one intercommunicating system was reserved to the parent Bell Company. The business and the local lines upon which it was developed were left very largely to those who held the licenses.

Development work in any branch of industry or science is full of suggestion; difficulty suggests remedy. The creation of the telephone service was full of difficulties to overcome and suggestions were abundant and discordant.

In the development of the service in separated, unrelated, uncontrolled units, independent research, investigation, experiment were being carried on in each unit. The manufacturing of operating and experimental apparatus was in workshops where it was but a subordinate part of the output. Each operating company and each workshop was following its own devices. Similar ideas, suggestions, inventions, combinations and experimentations were being tested and tried out, adopted or abandoned, with little reference to the work which was being done or which had been done in the other units or other shops. There was no organized control or systematization of effort, little or no conference or interchange or exchange of ideas, experience or practice. The development both in methods of operation and in apparatus not only lacked uniformity but it was not always on the best lines. Practice was progressing, precedents were being made, but there was little opportunity for the practice of any one to be made the precedent for the others.

There was multiplication of effort, waste and expenditure, unavoidable under the existing conditions, in every branch of the service and in every part of each organization.



With the growing appreciation of the value of the telephone came innumerable claimants, not only to the original invention of the telephone, but to every feature of the auxiliary apparatus. Claims were based on abandoned experiments, undeveloped ideas, misleading interpretations of patent claims, and on the broadened claims of reissued patents.

The mechanical and electrical instrumentalities necessary to give telephone service include all or parts of thousands of inventions. It was necessary that the ownership of, or the right to operate under all these patents should be available for the use of all, and whether developed inside or outside the business should be controlled for the common use of all. The business had to be protected, and those investing their capital, their efforts, their work, their all, were entitled to protection from each other and from the outside.

Because of all these reasons, because of the rapid increase in the amount of capital necessary to establish the business, because of the growing recognition of the importance of co-operation and uniformity, some organization, some administration which would guarantee protection was necessary.

Protection required expensive legal and expert assistance. The purchase and perfection of inventions required large expenditure and investment of capital. Above all, was necessary complete information and knowledge of the state of the art past and present. There was no accumulation or collection of the knowledge of the past. The knowledge of the practice of the present was not being properly or systematically preserved or collected in available form. To do all these things in any effective way was beyond the resources of any one operating company. To do it in an incomplete manner was worse than

useless. In such matters imperfect or incorrect or incomplete knowledge was more dangerous than no knowledge. Mistakes made from such causes involve large losses.

The trouble was common to all. The remedy must also be common to all.

Co-operation was necessary. There must be a bureau or department, a central clearing-house, as it were, with an expert staff covering the technical branches of the business, to which all effort, research, experiment, suggestion, all the crudities of the business could be brought; where they could be thoroughly considered and judged; the worthless, those which lacked novelty or were but recurring ideas, thrown out; good ideas imperfect or unpractical in themselves, perfected or combined with other ideas and made practical. Where a knowledge of all that was going on in all fields of endeavor, where the history of the past and records of the present, could be gathered; where everything in the way of knowledge or information could be made available for the use in the general administration and operation of the business.

The central Bell Company, which had the greatest interest in the future of the telephone business which it controlled through its reserved rights, was the center around which the business necessarily concentrated.

As part of its administration a department was organized which included the operating, technical and patent branches of the business, through which could be collected everything necessary for common use and to which all could come for advice on all matters, and for protection against all outside attacks.

The Bell Company through this department carried on research and experimental work and legal investigation in respect to inventions, and acquired all necessary to the art, or rights to use them. It assumed the

conduct of all contests relating to any of these matters, for the benefit and protection of the operating companies.

Peaceful enjoyment in the use of essential apparatus is a necessity of development.

Through the knowledge and information of the state of the art in all its branches; through the information and knowledge of the inventions and patents; through the work of experts in all these branches; through the possession or right to the use of all necessary inventions; through the freedom to develop on the very best lines; the operating Bell Companies are enjoying peaceful operation as against patents and patent litigation, and the Bell System has become the premier and model system of the world. That equity and just consideration to and for others have been the policy in building up this protection is best evidenced by the fact that there has been but one patent or legal contest in that connection for years, and that was where an inventor endeavored, through a broadened claim of a questionable patent, to get control of the common battery switchboard in general use. Had his claim succeeded, it would have cost the companies and the public millions of dollars. It did not succeed.

Through the patents controlled by the Bell System all the essential features of the telephone service now in use could without doubt be controlled, but patents in the hands of the Bell System have not been and are not being used for aggression; they are used only for protection.

#### CENTRALIZED GENERAL ADMINISTRATION.

Universal telephone service can be had only through a nation-wide intercommunicating system superimposed upon and connecting local exchange systems. This requires uniformity in operating methods and

instrumentalities; it requires co-ordination of effort and co-operation in the highest degree, which can be obtained only through one system, one policy, one centralized administration.

There are as a rule many ways of accomplishing the same object, only one of which is the best. It is only when the supreme test comes that the best and only the best can be used.

Telephone *exchange* service is local, and a satisfactory local service can be obtained through different methods of operation and many varieties of apparatus. For interconnecting service and distant communication uniformity in methods of operation and apparatus is necessary, in fact, imperative. When the first long-distance interconnecting service was established, it could not be used in connection with the then existing exchange service; special lines with special operators had to be provided for those using this service. Now, every exchange line is a long-distance line; every exchange station is the center, for that station, of the entire Bell System.

With the growth, extension and the co-ordinating of the business there arose other grave and important questions common to all. Questions respecting plant, right of way, licenses, public relations; problems of construction and design of fireproof central office buildings, of plant construction and right of way, of underground conduit and cable construction; commercial problems, and studies of the future relating to the direction of growth and increase; relations with other utility companies, particularly those using increasingly high tension currents—all became of the utmost importance to operating purposes. These questions were important from the standpoint of the service. They involved large expenditure for permanent plant.



Their proper solution was of the greatest importance to prevent waste through large expenditure in useless plant.

The constant change in apparatus, the increase in complexity of the mechanism and in methods employed cause by far the largest expenditure of capital and revenue in construction and maintenance. To control these changes so that new devices and new improvements could be fitted to the old, and only the special parts affected be wasted or scrapped, required the closest co-operative relations between the operating, experimental and manufacturing branches. The control of the manufacturing branch was necessary. This control and co-operation have reduced obsolescence to a minimum, stopped the scrapping of the entire apparatus, while in old days as was aptly said, "the progress of telephone development was marked by the scrap-heaps."

Financing this rapid development became one of the serious problems. The interdependence of the systems of the various companies was so great that failure to maintain proper service in any one was to the disadvantage of the others as well as to itself. The demands for service from the public increased greatly the aggregate capital necessary. The difficulty at all times for some of the companies to finance themselves, and the impossibility at times for others, made some systematic and comprehensive and co-operative financial system obligatory. If there were no financial relations between the companies, each would have to carry a large margin of idle capital. Through co-operation in financial matters all could be sure of capital to meet all requirements as they arose, one margin of idle capital could be carried for the benefit of all, and advantage could be taken for all of favorable financing conditions existing for any one.



Common interest in all these questions, and their complexity, required that they should be dealt with for all, by an administration common to all, and were the reasons for the extension of the central administration of the American Telephone and Telegraph Company to the whole Bell System. *The staff and the co-operation necessary to produce the results which have been obtained, could have been provided for in no other way.* It is in fact an arrangement by which each company maintains a local administration for local matters only, and all questions common to all, or any one question that may affect any one other company, are for the action of the Centralized General Administration.

For this centralized service, relieving the separated operating companies from the obligation of maintaining anything but an operating organization; for the amortization of the cost and royalties of all the many inventions; for the maintenance of a legal department at all times at the disposal of, and ready to defend, advise or prosecute for all companies, in all administrative matters; for the maintenance and support of the very complete, extensive and effective technical and engineering department; for the rental and care of the telephones themselves; for the financial assistance; for all the service and the benefit of it all, the operating companies contribute  $4\frac{1}{2}$  per cent. of their gross revenue. For the "administration" of the telephone business over this vast country, and for all the benefits that come from a common administration without which vastly greater sums of money would have been expended in operation, vastly greater sums required for construction and vastly greater sums paid for obsolescence; for all the advice and aid in legal and financial matters; for the right to use all inventions necessary and for protection in that right; for all the expenses of administration—after deducting the actual cost of

furnishing the telephones and maintaining them at the highest standard—the average contribution by the operating companies to the Centralized General Administration is less than 3 per cent. of their gross receipts.

#### DEVELOPMENT OF AND REASONS FOR THE 4½%.

Originally the telephones owned by the Bell Company were leased for a fixed rental payment for particular purposes. Owning and leasing the telephones instead of selling them insured proper maintenance, proper expert care, and the use uniformly throughout the system of only the highest and latest types, all of which was in the interest of the service and of the reputation of the instrument. Where the instruments are owned by users, expert care is seldom given and obsolete types are continued in use—all inimical to their reputation, and detrimental to the service.

The *rental* of the telephones originally covered only their use for a particular purpose. The only obligation of the Bell Company was to protect the licensee in that use.

The gradual assumption by the Bell Company of the expenses in connection with the development as set forth above and including it in the “rental” of the telephones, was entirely voluntary on its part.

The value of an invention is based on its earning power; concentrated service about large centers involves the most difficult and expensive problems; the cost of “Administration” is almost invariably proportionate to the amount of business done, the cost of doing the business, and the extent and importance of that business.

As the centralization of all matters common to all developed into a Central Administration for all, and the protection of the business was in the business policy and other inventions instead of telephone patents, the rental for instruments was changed to a

percentage on the gross revenue, and this percentage was made to include, both the rental of instruments and the contribution of the operating company to the cost of centralized administration. The term rental and royalties of telephones, however, has clung to the payment, much to the confusion and misunderstanding of those who had to deal with it.

### CONTROL AND REGULATION.

Regulation and control by commissions or business courts have, so far as anyone can forecast the future, become a permanent feature of our economic laws. Like all new departures from established practice, it could not be perfect from the start. Practice, experience and evolution on the lines pointed out by practice and experience can make perfection. The few years' experience has brought out prominently both good and bad features, but it has demonstrated that there are great possibilities of good and a strong probability if not a certainty that there can be had through them, a satisfactory solution of the economic problems as well as the correction of such business practices, of inherent badness, as were forcing otherwise conservative and right-seeing and right-believing people into the ranks of the extreme radicals. It has demonstrated that if the progress and development of the past are to be maintained, there must be abundant opportunity for individual initiative as well as individual reward for pioneer work. Too often-repeated investigations and inconsequential hearings waste the time of the officials and the revenues of the corporations. Regulation can be too drastic and interfere too much with operating. Neither economy nor efficiency comes from revolutionary methods. Most if not all of the wonderful claims made by exploiters of new ideas and inventions fail to materialize in the cold light of practical application.

While there is no doubt that the processes of law were sufficient to have corrected all the evils complained of, yet the processes were slow to be invoked, slow in action, and the hearing and final determination too technical to be a guide for action in general matters.

The broader and more general powers of a business court or commission when once established on their proper basis, will allow of more generalization, a more satisfactory, practical and less technical hearing, consideration and solution of all questions.

If the public can be brought to realize fully that the problems to be solved by these courts are the most vital of all questions, and to the whole public far more vital and important than any of the questions before the higher courts, then and not until then will these business courts have their proper position in the public mind and be esteemed for their true worth.

To reap the greatest benefit from both courts and judges, they should be of sufficient number to avoid all delay and give each question a prompt hearing and decision. The judges should have a sufficient tenure of office to enable them to become familiar with the questions upon which they have to pass, and with the practice, the precedents and economic laws controlling them.

And above all, if there are to be courts of commerce or commissions then the settlement of all matters which have been referred to such courts by the legislature should be left to them.

Business courts judicially interpreting laws, not enlarging them, acting with absolute independence of, and with equity and business fairness towards all interests but not as advocates of any one interest, supported by the public, will soon bring order and security out of the present uncertainty and be a bulwark against future economic disturbance.



As indicative of one of the conditions which must be cured, it was remarked, in reply to a suggestion that a certain person would make a good public utility commissioner, that he was too big a man for the position. Until everyone realizes, believes and acts on the belief that no man is too big timber for a court of commerce or public service commission, these courts cannot have their proper position in the mind of the public.

It is for the public to combine to encourage, support and sustain all these courts, commissions and the judges and members of commissions, and above all to abandon condemnation of all conclusions when they differ from selfish desires or opinions based on onesided and insufficient information. It is for the public to realize that any particular gain, if at the expense of other interests, is no permanent gain at all, that all business or public prosperity is based upon each party to any transaction getting some benefit from it.

Considered broadly and generally, the Bell System has no cause for complaint, protest or criticism as to its relations with legislatures, commissions, courts or municipalities. The various associated companies and this Company have been called before those having jurisdiction over their operations to give information and to make answer on many matters, many of them of grave importance. There have been some serious and many frivolous and selfish complaints made which had to be met and which have taken much time and caused large expense to both the investigators and the investigated. With a few notable exceptions from the view-point of the Bell System, right and reason have been the controlling influences in the conclusions reached. There have been fully as large a percentage of satisfactory conclusions arrived at by commissions as would have been in any regular courts of justice. No more could be expected.



The telephone business is peculiar in that it is the last business to feel depression and the first to recover. When other industries have to retrench, retrenchment is possible with the service of the Bell System at command; it is the cheapest assistant or server that can be employed.

While the year's telephone business shows an increase, it is not the normal increase; the circle of industrial conditions is out of balance and there is disturbance, and the telephone business is feeling the effect of it.

### CONCLUSION.

It is a long step from a hardly intelligible telephonic conversation between two rooms, to a perfectly easy, low-voiced conversation between the extremes of our land, East, West, North, South. Remarkable as this is, the progress made during the epoch of which this was the culminating point has been still more remarkable, but so quietly has it all been accomplished that it has been hardly appreciable. During the last ten years more has been done to increase the utility and availability of the telephone service, more has been done to increase its reliability, and greater obstacles have been overcome, than during its whole preceding existence.

What has been accomplished perhaps never will be surpassed, the present contains the germs of the future development. Commercial practicability will be more controlling in the future than technical practicability.

This advance has not been dependent on any one invention, idea or suggestion, but is the result of tens or even hundreds of thousands of little things, each a spadeful, as it were, in filling up or removing the obstacles, and smoothing the paths of progress. Inventions of wondrous analytical subtlety have marked

epochs in the progress of the telephone service, but in an art or industry or system made up of many interdependent operations and services; each new idea, no matter how controlling, must be adapted to what already exists to make it serviceable; any great or small invention is only useful when moulded into the mass so that its service becomes an undeterminate part of the service of the whole system.

Any public service system the use of which is interdependent and interconnecting, such as street railway or telephone systems, can only be of the greatest benefit to the public when the extent of the system and the extent of the district of the interdependent communities which it serves are identical. Just so far as the service is divided between a number of separate systems each serving a part, the community is deprived of the best possible service.

In any universal service where all the communities tributary to a central district, are to be served with the central district equally and uniformly, the entire service and the cost of that service must be treated as an entirety and the service for the tributary or subordinate parts of the district must be supplied in part at the cost of the whole; the consideration for it being in the contributory benefits of the subordinate parts, to the whole.

The use of the telephone system from any one station very largely influences the cost of that station. To make a flat or uniform rate for each station is in effect making the small user pay the costs of the service for the large users; and the result of this is to put the service out of the reach of many to whom it would be desirable and whose connection with the system would be of advantage to all others connected with it.

Economic laws cannot be ignored. No matter what the political or commercial or practical requirements may be as to separate operating companies or divisions, in order to give a general service extending in each direction as far as conversation will go, all must be controlled by one dominating policy, based on the dominating necessities of all.

The service of the Bell System as it stands to-day is the result of organization and system, in which every individual member is a free, active and responsible agent within his own sphere of action and the limitations of his duties. Each individual feels that he is an essential and important part of the whole, and recognizes his obligatory relation towards all other parts and his accountability and responsibility and subordination to the organization of which he is a part.

The organization is based on the principle that while there are local conditions and local requirements as to local operation, there must be one dominating policy and control under which all action will, while moving in its own local sphere independently, move in entire harmony with all and without disturbing the reciprocal relations of any.

It is a combination of individual self-assertion and freedom controlled by subordination to the common good of all.

The position that the Bell System holds with the public is entirely due to the fact that the Bell service has been consistently built upon the policy of creating a service of such great benefit and advantage to the public, and rendered at prices so well within its value to all—so well adapted to the use of all, as well as being a direct pecuniary advantage to each user—that none are too poor to take advantage of it, and none so independent as to get along without it.

To this policy, to this organization, and to every individual member of it belongs the credit of making the Bell System what it is—the premier system of the world and the model after which every universal system throughout the world is built.

For the Directors,

THEODORE N. VAIL,

*President.*





CONDENSED STATISTICS.

	Dec. 31, 1895.	Dec. 31, 1900.	Dec. 31, 1905.	Dec. 31, 1910.	Dec. 31, 1913.	Dec. 31, 1914.	Increase, 1914.
Total Miles of Pole Lines.....	78,203	131,538	213,233	282,877	323,051	326,168	3,117
Miles of Underground Conduit (length of single duct) .....				30,165	40,514	42,761	2,247
Miles of Underground Wire.....	184,515	705,269	2,345,742	5,992,303	8,817,815	9,760,165	942,350
Miles of Submarine Wire.....	2,028	4,203	9,373	24,636	31,833	35,809	3,976
Miles of Aerial Wire.....	488,872	1,252,329	3,424,803	5,625,273	7,261,363	7,679,620	418,257
Total Miles of Wire.....	675,415	1,961,801	5,779,918	11,642,212	16,111,011	17,475,594	1,364,583
Comprising Toll Wire.....	215,687	607,599	1,265,236	1,963,994	2,333,541	2,437,697	104,156
Comprising Exchange Wire.....	459,728	1,354,202	4,514,682	9,678,218	13,777,470	15,037,897	1,260,427
Total.....	675,415	1,961,801	5,779,918	11,642,212	16,111,011	17,475,594	1,364,583
Total Exchange Circuits.....	237,837	508,262	1,135,449	2,082,960	2,812,944	2,972,901	159,957
Number of Central Offices.....	1,613	2,775	4,532	4,933	5,245	5,289	44
Number of Bell Stations.....	281,695	800,880	2,241,367	4,030,668	5,415,209	5,763,008	347,799
Number of Bell Connected Stations*....	27,807	55,031	287,348	1,852,051	2,717,808	2,885,985	168,177
Total Stations.....	309,502	855,911	2,528,715	5,882,719	8,133,017	8,648,993	515,976
Number of Employees.....	14,517	37,067	89,661	120,311	156,928	142,527	\$14,401
Number of Connecting Companies, Lines and Systems.....				17,845	25,679	27,210	1,531
Exchange Connections Daily.....	2,351,420	5,668,986	13,543,468	21,681,471	26,431,024	27,049,225	618,201
Toll Connections Daily.....	51,123	148,528	368,083	602,539	806,137	798,949	\$7,188

\*Includes Private Line Stations.

§Decrease.

# BELL TELEPHONE SYSTEM IN THE UNITED STATES.

## ALL DUPLICATIONS BETWEEN COMPANIES EXCLUDED.

### COMBINED BALANCE SHEETS AT FIVE YEAR INTERVALS, 1885-1914.

	Dec. 31, 1885.	Dec. 31, 1890.	Dec. 31, 1895.	Dec. 31, 1900.	Dec. 31, 1905.	Dec. 31, 1910.	Dec. 31, 1914.
<b>ASSETS:</b>							
Contracts and Licenses	\$16,732,100	\$18,925,700	\$20,005,300	\$14,794,300	\$13,313,400	\$2,943,381	\$847,204,803
Telephone Plant.....	38,618,600	58,512,400	87,858,500	180,699,800	368,065,300	610,999,964	15,701,601
Supplies, Tools, etc....	348,500	1,021,800	1,810,000	6,464,400	11,069,500	20,987,551	37,275,586
Receivables.....	1,450,900	1,761,600	3,746,600	13,644,000	26,220,800	26,077,802	49,791,276
Cash.....	1,792,600	1,183,300	2,484,100	3,223,000	11,005,900	27,548,933	69,800,814
Stocks and Bonds.....	1,138,800	2,697,400	4,480,500	11,400,400	23,041,200	64,766,089	
Total.....	\$60,081,500	\$84,102,200	\$120,385,000	\$230,225,900	\$452,716,100	\$753,323,720	\$1,019,774,080
<b>LIABILITIES:</b>							
Capital Stock.....	\$38,229,200	\$43,792,800	\$57,462,700	\$130,006,900	\$238,531,100	\$344,645,430	\$393,731,750
Funded Debts.....	367,400	6,473,100	10,074,100	44,137,900	93,079,500	224,791,696	385,352,367
Bills Payable.....		1,323,000	2,000,000	7,000,000	35,000,000	42,566,943	15,630,790
Accounts Payable.....		3,301,100	6,138,000	13,583,300	22,407,500	21,721,125	26,214,274
Total Outstanding Obligations.....	\$41,215,500	\$54,890,000	\$75,674,800	\$194,728,100	\$389,018,100	\$633,725,194	\$820,929,181
Employees' Benefit Fund.....			44,710,200				8,889,750
Surplus and Reserves..	18,866,000	29,212,200		35,497,800	63,698,000	119,598,526	189,955,149
Total.....	\$60,081,500	\$84,102,200	\$120,385,000	\$230,225,900	\$452,716,100	\$753,323,720	\$1,019,774,080

# BELL TELEPHONE SYSTEM IN THE UNITED STATES.

ALL DUPLICATIONS BETWEEN COMPANIES EXCLUDED.

## COMPARATIVE REVENUE AT FIVE YEAR INTERVALS, 1885-1914.

	Year 1885.	Year 1890.	Year 1895.	Year 1900.	Year 1905.	Year 1910.	Year 1914.
Gross Revenue .....	\$10,033,600	\$16,212,100	\$ 24,197,200	\$ 46,385,600	\$ 97,500,100	\$165,612,881	\$ 225,952,123
Expenses .....	5,124,300	9,067,600	15,488,400	30,632,400	66,189,400	114,618,473	166,704,844
Net Revenue .....	\$ 4,909,300	\$ 7,144,500	\$ 8,708,800	\$ 15,753,200	\$ 31,310,700	\$ 50,994,408	\$ 59,247,279
Interest .....	27,700	278,700	655,500	2,389,600	5,836,300	11,556,804	18,940,641
Net Income .....	\$ 4,881,600	\$ 6,865,800	\$ 8,053,300	\$ 13,363,600	\$ 25,474,400	\$ 39,437,544	\$ 40,306,638
Dividends .....	3,107,200	4,101,300	5,036,900	7,893,500	15,817,500	25,160,786	30,304,186
Balance for Surplus .....	\$ 1,774,400	\$ 2,764,500	\$ 2,986,400	\$ 5,470,100	\$ 9,656,900	\$ 14,276,758	\$ 10,002,452

# American Telephone and Telegraph Company.

## Balance Sheet, December 31, 1914.

### ASSETS.

Stocks of Associated Companies.....	\$435,146,228.32	
Bonds of Associated Companies.....	581,000.00	
Capital Advances to Associated Companies.....	52,302,180.00	\$488,029,408.32
Telephones.....	\$ 14,639,872.65	
Real Estate.....	508,450.42	
Long-Distance Telephone Plant.....	49,819,064.66	64,967,387.73
Cash and Deposits.....		36,266,757.17
Short Term Notes Maturing in 1915..		3,397,060.53
Special Demand Notes.....		28,774,658.57
Current Accounts Receivable.....		7,181,721.25
		<u>\$628,616,993.57</u>

### LIABILITIES.

Capital Stock.....		\$344,681,900.00
4% Collateral Trust Bonds, 1929.....	\$ 78,000,000.00	
4% Convertible Bonds, 1936.....	4,505,000.00	
4½% Convertible Bonds, 1933.....	67,000,000.00	
5% Western T. & T. Co. Bonds, 1932..	10,000,000.00	
5% Coupon Notes, 1907.....	5,000.00	
Indebtedness to Western Union Telephone Co. for New York Telephone Co. Stock Payable 1915.....	2,000,000.00	
Notes to Associated and Allied Companies.....	15,603,236.00	177,116,236.00
Dividend Payable January 15, 1915...	6,893,638.00	
Interest and Taxes Accrued, but not due.....	3,331,946.93	
Current Accounts Payable.....	818,963.29	11,044,548.22
Employees' Benefit Fund.....		2,027,749.80
Reserves for Depreciation and Contingencies.....		27,810,699.92
Surplus.....		65,935,859.63
		<u>\$628,616,993.57</u>

NOTE: \$30,896,000.00 5% Coupon Notes of Associated Companies maturing in 1916 have been endorsed and sold by this Company and are not included above in either Assets or Liabilities.

CHARLES G. DuBOIS, *Comptroller.*

## American Telephone and Telegraph Company. Comparative Statement of Earnings and Expenses

For the years 1913 and 1914.

	1913.	1914.
<b>EARNINGS:</b>		
Dividends.....	\$26,122,572.81	\$25,638,205.03
Interest and other Revenue from Associated Companies.....	13,564,952.47	13,959,943.61
Telephone Traffic (net).....	5,548,089.00	5,530,454.44
Other Sources.....	674,377.34	1,067,995.77
<b>Total.....</b>	<b>\$45,909,991.62</b>	<b>\$46,196,598.85</b>
<b>EXPENSES.....</b>	<b>5,333,245.43</b>	<b>5,638,621.56</b>
<b>NET EARNINGS.....</b>	<b>\$40,576,746.19</b>	<b>\$40,557,977.29</b>
Deduct Interest.....	7,656,655.78	8,223,163.23
<b>Balance.....</b>	<b>\$32,920,090.41</b>	<b>\$32,334,814.06</b>
Deduct Dividends.....	27,454,037.15	27,572,674.72
<b>Balance.....</b>	<b>\$ 5,466,053.26</b>	<b>\$ 4,762,139.34</b>
Carried to Reserves.....	\$ 2,500,000.00	\$ 2,500,000.00
Carried to Surplus.....	2,966,053.26	2,262,139.34
<b>Total.....</b>	<b>\$ 5,466,053.26</b>	<b>\$ 4,762,139.34</b>

CHARLES G. DuBOIS, *Comptroller.*

## Annual Earnings and Dividends.

Year.	Net Revenue.	Dividends Paid.	Added to Reserves.	Added to Surplus.
1900.....	\$ 5,486,058	\$ 4,078,601	\$ 937,258	\$ 470,199
1901.....	7,398,286	5,050,024	1,377,651	970,611
1902.....	7,835,272	6,584,404	522,247	728,621
1903.....	10,564,665	8,619,151	728,140	1,217,374
1904.....	11,275,702	9,799,118	586,149	890,435
1905.....	13,034,038	9,866,355	1,743,295	1,424,388
1906.....	12,970,937	10,195,233	1,773,737	1,001,967
1907.....	16,269,388	10,943,644	3,500,000	1,825,744
1908.....	18,121,707	12,459,156	3,000,000	2,662,551
1909.....	23,095,389	17,036,276	3,000,000	3,059,113
1910.....	26,855,893	20,776,822	3,000,000	3,079,071
1911.....	27,733,265	22,169,450	2,800,000	2,763,815
1912.....	32,062,945	26,015,588	2,800,000	3,247,357
1913.....	32,920,090	27,454,037	2,500,000	2,966,053
1914.....	32,334,814	27,572,675	2,500,000	2,262,139

CHARLES G. DuBOIS, *Comptroller.*



ARTHUR W. TEELE, C.P.A.  
 JOHN WHITMORE  
 HAMILTON S. CORWIN, C.P.A.  
 HAROLD F. LEEMING, C.A.

\* R. C. STEELE, C.A.  
 BOSTON

CABLE ADDRESS  
 "DIGNUS"

*Patterson, Teele and Dennis*  
*Accountants and Auditors*  
*New York and Boston*

30 BROAD STREET, NEW YORK, February 23, 1915.

MR. WILLIAM J. LADD,  
 MR. CHARLES C. JACKSON,  
 MR. LOUIS CURTIS,  
 STOCKHOLDERS' COMMITTEE,  
 AMERICAN TELEPHONE & TELEGRAPH COMPANY.

SIRS:

As auditors appointed by you, we beg to report as follows:

We have audited the accounts of the American Telephone & Telegraph Company, and of the thirty-two Subsidiary State Companies owning Long Distance Toll Lines of the Bell System, for the year 1914. These accounts are consolidated in the Balance Sheet herein referred to and published herewith.

We have not audited the books of the Associated Companies whose securities are carried as investments in the accompanying Balance Sheet, as follows:

Stocks of Associated Companies,	\$435,146,228.32
Bonds of Associated Companies,	581,000.00

We have, however, examined the reports of these Associated Companies for the year and have carefully considered the value at which the securities are carried.

We certify that the accompanying Balance Sheet and Statement of Earnings and Expenses are in accordance with the books, and fairly set forth the financial condition of the American Telephone & Telegraph Company at December 31, 1914, and the result of operations for the year ended that date.

PATTERSON, TEELE & DENNIS,  
 Accountants and Auditors.

LETTER FROM THEODORE N. VAIL

TO THE

DIRECTORS AND SECURITY HOLDERS

OF THE

American Telephone and Telegraph Company

TO ACCOMPANY THE REPORT TO THE STOCKHOLDERS  
FOR THE YEAR 1914

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NEW YORK, 1915



TO THE DIRECTORS AND SECURITY HOLDERS OF THE AMERICAN TELEPHONE AND TELEGRAPH COMPANY:

The future of public service enterprises for intercommunication and interchange is something in which you have an indirect interest as members of a great community, and a direct interest in one of the principal enterprises, the telephone. In fact, the question to my mind is so important that the direct interest would be as a member of the community and the indirect as financially interested in one of the enterprises.

There is a condition of disturbance, of economic unsettlement, which cannot continue indefinitely. Either the causes must be removed, or by a period of quiet and freedom from other changes a chance be given for the new conditions to adjust themselves.

Never were the basic conditions of the country better than now for a restoration and continuance of normal conditions. The correction is simple and is pointed out by numerous precedents of the past and by well-established economic laws.

It does seem as if by combined effort of all, right ideas and a right understanding might be brought to bear on the solution of these questions.

While the subject is not strictly pertinent to the annual report of the Company, yet in my opinion it is so important that the note of warning should be sounded.

## PUBLIC SERVICE.

THE MOST VITAL OF ALL PRESENT ECONOMIC PROBLEMS ARE THE RELATIONS BETWEEN THE PUBLIC AND PUBLIC SERVICE UTILITIES, PARTICULARLY THOSE OF INTERCHANGE AND INTERCOURSE—WHAT CONSTITUTES *PROPER* REGULATION AND CONTROL—WHAT IS THE BEST METHOD OF SECURING THEIR PROPER MAINTENANCE AND FURTHER EXTENSION.

Movement is life—intercourse and interchange are the basis of civilization and commerce.

The quantity, quality and convenience of the means of intercommunication determine the prosperity of the community, for on them depend the degree of interchange of thought and of commodity—the degree of civilization and of commerce.

The demand for any production creates its value. The demand depends upon available fields of consumption made accessible and convenient by adequate and efficient facilities of intercourse and interchange.

The United States of today, in all its magnificence, has been created—its latent possibilities made tangible, its prosperity maintained, its growth continued—by or because of these means of intercourse and interchange. The maintenance and continued growth of this prosperity will be in a great measure dependent upon the maintenance and continued growth of the utilities which furnish these facilities. All other utilities or industrial or commercial enterprises are subordinate to and dependent upon them.

Until proper relations are established between the public and the public utilities, there cannot be too many repetitions of their importance, no effort should be spared to emphasize it and guide the public to



right conclusions. Until some popular misunderstandings are corrected it will be difficult to establish proper relations.

It is the generally accepted belief that utilities are dependent on the public rather than the public dependent on them; while neither could exist without the other, means of intercourse and interchange are the *advance agents*. Competition, control, regulation and legislation have been looked upon as the causes or forces which have enabled or compelled industrial enterprises to improve and extend their service; to increase production; to pay increased wages and taxes; and at the same time to decrease charges for service rendered. While these have been to some extent a stimulus, the wonderful improvement which has been made has been coincident, and indissolubly connected with the replacement of the old "rule of thumb" methods, by methods of scientific operation. *Investigation, research, and the application of the results to both operation and production have produced "much more" and "much better" from the same or less effort and expenditure, and have obtained valuable products from what had heretofore been wasted; much to the benefit of the worker, the public served, and of those responsible for the work.* There is a lack of consistency in the understanding respecting enterprise and initiative, and the relations between capital and labor, the employer and the employee. There are many ideals and beautiful theories which in time we hope may be realized. But commerce and industry are dependent upon the purchaser and consumer and so long as the human factor of self interest as it now exists controls them in their dealings, so long must the effect of that same existing human factor be taken into consideration by commerce and industry in their relations with both producer and the worker.

The situation in the past has been aggravated, public indignation aroused, and public action influenced, by misleading and wilfully mistaken statements

of irresponsible demagogues and impractical theorists. There may have been some lack of a sense of reciprocal obligation on the part of some corporations and their servants to the public. There may have been some abuses, but even if the worst that has been asserted was true, they were not of the kind that could have brought about existing conditions, which arise from an imposed reduction in revenue and an imposed increase of expenses. The public in turn has attempted to bring about ideal conditions through the power of control and regulation. This power has resulted in some cases in the impairment and even in the destruction of property rights and of the physical property involved.

Happily, those abuses that existed are passing, and there is evidence of better understanding and appreciation, and more substantial justice on both sides. The public, and particularly those dependent on employment, will soon realize that the wealth of this country does not consist of tangible tokens of value that can be realized upon at will, but that it largely consists of property, or certificates representing property, which has been created by the investment of their savings in these enterprises of utility and industry. The returns from and the intrinsic value of these enterprises, depend on the activity caused by demand for the products or service produced by the employment of workers. Without that activity, employment ceases, returns disappear and values are dissipated.

Public service enterprises when prosperous are large employers of labor and large purchasers and consumers of all varieties of products and manufactures. Their activity means employment and circulation of money which in turn means further consumption of products and manufactures, and the further employment of labor. Employment means ability to purchase. Ability to purchase means consumption. Consumption means production, and production for which there is a de-

mand means prosperity. Abundant employment makes the worker his own master. He can afford to purchase and consume production. Without employment he is a burden on his savings, his friends or on the community.

It is a great revolving circle of civic and industrial conditions, no beginning, no ending. So long as it is unbroken, so long as each condition is balanced by the others, so long as all changes in conditions are allowed to take place by evolution from old to new, or so long as these changes take place with sufficient deliberation to allow other conditions to become adapted to the changes, so long all will go well and there will be peace, prosperity and progress.

In such times and such conditions everything goes so smoothly that economic life seems commonplace and monotonous; then come the revolutionary changes brought about through those who are too indifferent, careless and unthinking to resist the influence of too radical theorists.

When the balance is broken by these changes, and the relations between the conditions are changed faster than any adjustment between them can take place, then will come disturbance. Continued disturbance is inevitably followed by disaster.

To maintain present conditions only, or even obtain actual though not normal increase, does not mean progress and is not a sound economic position. It is the normal increase that must be had if we are to maintain our relative position and provide for the millions yearly added by new generations and new immigration.

The entire public, working or investing, will all stand by and uphold a control and regulation which will be thorough and effective and at the same time equitable, just and practical. *But has the public ever remained complaisant when it is brought face to face with disturbance, uncertainty and unemployment, caused by too drastic action or too radical legislation upon economic conditions or industrial enterprises?*

Control and Regulation can make unnecessary demands upon the time of those who are responsible for operation; they can become destructive instead of constructive; they can by delay paralyze commerce; they can through the inexperienced in operation impose unnecessary burdens and unnecessary expenditure upon corporations; they can impose or require too many regulations and theories of operation and too many undeveloped experiments in plant and equipment; they can very easily run into operation. Demands of labor for increased wages and shorter hours, and demands of the public for increased service, must be met by increased revenue produced by increased rates. The application of scientific and improved methods to operation produced great results in reduction of expenses because it had an unworked field to start with, but it cannot be expected that the same ratio of progress will be indefinitely maintained. *The irreducible minimum in unit expense has been reached in some industries and soon will be in all.*

*A corporation, no more than an individual, can be bound hand and foot and yet be active or give good service.*

If too many burdens are put upon corporations, and no relief given them, it will be impossible for them to properly operate or maintain their plants. Poorly constructed, badly maintained and inefficiently operated utilities cannot give good service. Inadequate revenue would make it impossible to meet capital charges. Capital would avoid any enterprise which had to do with public service. Without capital, employment in any large way would cease, extension and improvement would be stopped, values would be destroyed, and the enterprise would become bankrupt.

When service is rendered by starved or bankrupt corporations in the hands of receivers, results must follow which will be disastrous. The indirect losses to



the public will be far greater than the direct loss to the investor. Decline in prosperity will come to any community dependent upon such corporations. No community with inadequate and inefficient facilities for intercourse and interchange can compete with communities with adequate and efficient facilities.

*Bankrupt public service, in time, means bankrupt communities.*

It will not then be the mythical money trust or the prominently rich that will have to be dealt with, but it will be the power of the nation, the millions dependent upon their daily employment, whose savings are invested in that which represented progress and prosperity, and who are brought suddenly face to face with destruction of values, loss of savings and unemployment.

#### DISTURBANCE OF STABILITY AND CONDITIONS.

There are three principal creative divisions of industrial enterprises:—"Industries producing from the Earth," of which agriculture is the most important—"Manufacturing"—and "Public Service" which is very largely transportation and intercommunication. All other industries or professions are subordinate to or dependent upon, these principal industries; and their rise and decline directly connected with them; they are creative only to the extent that they organize, develop or promote trade and commerce, production and consumption.

Production from the earth is the primary industry, but is dependent upon the broad distribution only to be obtained through means of transportation and other facilities of intercommunication.

Manufacturing is the barometer which indicates the improvement and decline of the conditions of commerce and trade.

“Transportation” and “Intercommunication” are the most important of all in their creative effect. They are the industries upon which depend all interchange and movement, all commerce and trade except that which is purely local. Transportation and intercommunication change local stagnation into world-wide interchange and prosperity. Their relative economic importance as to other industries is many times their relative capital.

During the quarter of a century just past these three principal industries increased about two times and now represent about \$100,000,000,000 of invested capital. This development and this new wealth of \$65,000,000,000 in these enterprises alone, was made possible by, and was coincident with the development of transportation.

The capital invested in Public Service and Manufacturing increased during the quarter of the century at the rate of nearly \$1,500,000,000 per year; the number of employed increased about 100% and their yearly compensation over \$3,500,000,000 or 130%. In enterprises of transportation and intercommunication the capital increased over \$15,000,000,000 or an average of \$600,000,000 per year; employees over 175%, with an increase in yearly compensation of \$1,350,000,000 or over 200%.

Prior to the quarter century agricultural products were largely in excess of domestic consumption; agriculture in the Atlantic States was suffering. At the end of the period, because of increased employment and purchasing power, the domestic consumption of agricultural products had about overtaken production, which had more than doubled in average yearly value. The agricultural interests of the Atlantic States were rapidly reviving.

The normal employment in the public service and manufacturing industries alone should be at the present time nearly if not quite 12,000,000 with annual earnings of from \$7,200,000,000 to \$7,500,000,000.

All employment is far below normal. There are fully 2,000,000 unemployed, whose yearly earnings should be at least \$1,250,000,000. These unemployed are now living at the expense of their savings, their friends, or the public. If they were employed, normal conditions would be restored, the circle of interdependent conditions would be balanced, prosperity would be restored.

Capital invested in "Transportation" and intercommunication constitutes one-half the combined capital of Public Service and Manufacturing. It is entirely in the form of negotiable securities, while a large part of the other capital is closely held or not readily realized on. Transportation securities have been for years a favorite investment for capital by the small investor, the trustee, the savings bank; by the most conservative in good times and by the wise investors in bad times; *any cause that disturbs these enterprises disturbs all*, both industrially and financially.

The disturbance, uncertainty, and timidity about "Transportation" due to legislative requirements and the increased payments to employees, without any corresponding increase of gross revenue to meet them, have caused increase in expense of operation which can no longer be met by reduction of operating expenses or by scientific methods, for the irreducible minimum has about been reached.

The decrease in the surplus operating revenue has cast doubts upon the safety and certainty of not only the charges on the capital but the capital itself. Except for a few favored lines the safe margin has been so reduced that investors have become frightened.

Extension and improvement of our transportation facilities for which capital is required, are necessary. Money in sufficient quantities or on reasonable terms cannot be obtained. Nothing that can be postponed is being done. Unless soon made, the increasing demands

of the country as a "*going*" concern cannot be satisfied, to say nothing of our country as a "*growing*" concern.

If there could be a restoration of conditions which would inspire confidence in their securities sufficient to command the capital with which to begin the expenditure of even a part of the \$1,000,000,000 a year needed to put these enterprises in a position to meet the demands of the country both as a "*going*" and as a "*growing*" concern, it would soon restore the normal conditions of employment, expenditure, consumption, production. The circle of industrial conditions would be again balanced, shops and factories would be filled, and instead of the bread line there would be a working line night and morning between places of employment and homes.

During the past quarter century progress was steady and continual, except when the over-sanguine or over-grasping were buying, on credit or small margin, intangible though possible future values, or when attempts were made to improve existing conditions by sudden changes.

The public mind which has been excited and influenced by exaggerated, misleading and mistaken statements of irregularities, realizes that most of them had no foundation in fact. Those that did exist cannot be repeated; business conscience and public morals, as well as regulatory laws will not permit. Other irregularities will creep in, for where there is abundance produced by labor, there will be many who want a part of it without labor. Take the fetters and restrictions off the employment market, keep a good watch on those who do not want to labor, and punish those who betray confidence. Wealth never will be distributed equally nor always employed wisely, but where it exists in abundance there is always a chance for those who are willing to exchange their labor for some of it.

THEODORE N. VAIL.

March 15, 1915.



DIAGRAM  
SHOWING THE GROWTH IN  
SUBSCRIBER STATIONS  
CONNECTED TO THE SYSTEM  
OF THE

**BELL TELEPHONE  
COMPANIES**

FROM  
JAN. 1, 1876—JAN. 1, 1915

On January 1, 1915, there was one Bell Telephone Station to each 11 of the Total Population of the United States.



